REMARKS

In the interest of clarity, the following Item Numbers correspond to the Examiner's Item Numbers in the Office Action:

1-2. Claims 1-20 are pending. Responsive to Amendment A, filed 01/16/2004, Applicant respectfully notes that the Examiner removed the following two rejections, for which Applicant expresses acknowledgment and gratitude:

- Claims 1-3, 6, 13-16, and 18-19 under 35 U.S.C. § 102(b) as being anticipated by U.S. Pat. No. 5,907,498 ("Rim"); and
- Claims 4-5, 7-12, 17, and 20 under 35 U.S.C. § 103(a) as being obvious over Rim in view of U.S. Pat. No. 5,508,951 ("Ishikawa") in further view of U.S. Pat. No. 5,943,249 ("Handlogten").

3-4. The Examiner rejected Claims **1-3, 6, 13-15,** and **18-19** under 35 U.S.C. § 103(a) as being obvious over the admitted prior art (i.e., Applicant's FIG. 1) in view of U.S. Pat. No. 5,260,890 ("Suzuki"). Respectfully, Applicant traverses and requests withdrawal.

More specifically, the Examiner acknowledges that Applicant's FIG. 1 "does not disclose the determining and predicting step occurs independent from and substantially in parallel with the performing step," with which Applicant respectfully agrees. However, the Examiner further asserts "Suzuki discloses in Figure 2 an overflow detector that is capable of determining an overflow output independent from and substantially in parallel with the performing step," and therefore concludes "it would have been obvious to a person having ordinary skill in the art at the time the invention is made to add the overflow detector that is capable of determining an overflow output independent from and substantially in parallel with the performing step as seen in Suzuki's invention into the admitted prior art's Figure 1 because it would enable [sic] to detect the overflow earlier than an arithmetic (abstract last 3 lines) output which improves the system performance," with which Applicant respectfully disagrees for at least each of the following reasons.

On the one hand, in Applicant's FIG. 1, ALU Operations (6) and Overflow Detection (10) are **dependent, serial** processes. Dependent processing is evident from the arrowhead and directional flow of reference numeral 8, which indicates Overflow Detection (10) does not begin unless and until ALU Operations (6) are completed. Accordingly, Overflow Detection (10) is dependent on ALU Operations (6) in Applicant's FIG. 1. Likewise, serial processing is also evident from the arrowhead and directional flow of reference numeral 8, which indicates

Overflow Detection (10) does not begin unless and until ALU Operations (6) are completed. *See also Page 2, lines 2-3* ("The output 8 from the arithmetic operator 6 is **then** directed into the overflow detection scheme 10" (emphasis added, in which the word "then" suggests sequential operations in time—i.e., serial processing)). Accordingly, ALU Operations (6) occur first, Overflow Detection (10) occurs second, and ALU Operations (6) and Overflow Detection (10) are serial processes in Applicant's FIG. 1. Thus, Applicant's FIG. 1 discloses dependent, serial ALU Operations (6) and Overflow Detection (10).

On the other hand, in Suzuki's FIG. 2, ALU Operations and Overflow Detection are **independent, serial** processes. Independent processing is evident from the language of the Suzuki specification, which indicates ALU Operations and Overflow Detection are independent. *See, e.g., Col. 1, lines 43-45* ("An object of the present invention is to provide an overflow detection system...which detects an overflow signal independent of an adder"). Accordingly, Overflow Detection is independent from ALU Operations in Suzuki's FIG. 2. Likewise, serial processing is also evident from the language of the Suzuki specification, which indicates Overflow Detection begins prior in time to ALU Operations. *See, e.g., Abstract, last three lines* ("Thus, the overflow of the result of operation can be detected **earlier** than an adder and a substracter [sic] output the results" (emphasis added, in which the word "earlier" suggests sequential operations in time—i.e., serial processing)). Accordingly, Overflow Detection occurs first, ALU Operations occur second, and ALU Operations and Overflow Detection are serial processes in Suzuki's FIG. 2. Thus, Suzuki's FIG. 2 discloses independent, serial ALU Operations and Overflow Detection.

In contrast, each of Applicant's rejected independent claims contains **partial ALU calculations** and **parallel processing**, which Applicant asserts is not anticipated, nor rendered obvious, by Applicant's FIG. 1 or Suzuki's FIG. 2, as indicated here:

Claim #	Partial ALU Calculation Language	Parallel Processing Language
Claim 1	performing at least partially the arithmetic operation	substantially in parallel
Claim 2	performing at least partially the multiplication	substantially in parallel
Claim 3	at least partially multiplying	substantially in parallel
Claim 6	performing at least a partial multiplication	substantially in parallel
Claim 13	at least partially multiplying	substantially in parallel
Claim 15	at least partially multiplying	substantially in parallel

Since the Examiner is required to consider *all words* in a claim when determining patentability, Applicant respectfully asserts that neither dependent, serial processes (i.e., Applicant's FIG. 1) nor independent, serial processes (i.e., Suzuki's FIG. 2) anticipate or render obvious Applicant's partial ALU calculations and parallel processing, as disclosed and claimed throughout the entirety of Applicant's application.

Moreover, Applicant respectfully asserts Applicant's FIG. 1 and Suzuki's FIG. 2 are *complete and functional* in and of themselves, so there is *no reason to combine* their respective teachings to arrive at Applicant's invention, and, even if combined, they *fail to meet or render obvious* Applicant's claims. Notwithstanding the Examiner's *unsupported observation* to the contrary, neither reference—whether individually or in combination—*teaches, discloses, or contemplates* Applicant's partial ALU calculations or parallel processing, and neither could, therefore, be reasonably expected to achieve Applicant's *unexpected results* accomplishing the same. Applicant respectfully asserts the Examiner has made a *strained combination of references* to equate dependent and independent serial process with partial ALU calculations and parallel processing, and that the Examiner can only support such an observation, if at all, through improper *hindsight reconstruction*. For example, Applicant respectfully asserts there is no reason, in logic or otherwise, to assume dependent and independent serial processes can be combined to form partial ALU calculations or parallel processes, particularly when prior art references expressly prefer serial processes, which both Applicant's FIG. 1 and Suzuki's FIG. 2 do, thereby *teaching away* from partial ALU calculations and parallel processing. Finally, dependent and independent serial processes employ *different principals of operation* than do Applicant's partial ALU calculations and parallel processing. For example, Applicant's FIG. 1 begins ALU Operations (6) before Overflow Detection (10), while Suzuki's FIG. 2 begins Overflow Detection before ALU Operations; on the other hand, it is an altogether different principal of operation to begin both at the same time, as well as to disclose and claim partial ALU operations in conjunction therewith. Accordingly, Applicant respectfully asserts that dependent and independent serial processing are *inapposite and mutually exclusive* of Applicant's partial ALU calculations and parallel processing.

Thus, Applicant respectfully asserts that Applicant's FIG. 1 in view of Suzuki cannot, and therefore does not, render Applicant's invention obvious. Earnestly believing Claims 1-3, 6,

13-15, and 18-19 therefore recite patentable subject matter, Applicant respectfully requests reconsideration, and allowance, of the same.

Similarly, since Applicant respectfully asserts that all of Applicant's independent claims are non-obvious, Applicant further asserts that all claims depending therefrom are also non-obvious.

Regarding specific rejections of Claims 6, 13-15, and 19, the Examiner states these claims were rejected under the same rationale in the rejection of rejected Claim 1. However, Applicant respectfully asserts that in accord with the foregoing analysis and conclusions drawn therefrom, any and all other such grounds for rejection and objection are thereby obviated.

Regarding the specific rejection of Claim 3, Applicant respectfully notes that the Examiner made an unsupported reference to Rim, which Applicant previously addressed in Amendment A, as previously noted. More specifically, the Examiner did not relate Rim to any other references in this rejection, so Applicant respectfully seeks clarification regarding Rim in order to be able to properly respond thereto. In the meantime, however, Applicant respectfully notes that Rim, as Applicant previously discussed in Amendment A, discloses a dependent, serial process—similar to Applicant's FIG. 1—as evident from the carry bit C30 carried from Rim's ALU Operations (14) to Rim's Overflow Detection (150). If the Examiner seeks additional clarification from Applicant regarding Rim, Applicant would appreciate an opportunity to respond to a more formal rejection, if any, relating thereto. Otherwise, Applicant respectfully asserts that none of Applicant's FIG. 1, Suzuki, or Rim—whether individually or in combination—anticipates or renders obvious Applicant's **partial ALU calculations** and **parallel processing**, as disclosed and claimed throughout the entirety of Applicant's application.

5. Applicant respectfully notes that the Examiner has allowed Claims 4-5, 7-12, and 20, for which Applicant expresses acknowledgment and gratitude.

6. As the Examiner requested, Applicant re-wrote Claims 16-17 as independent claims including all of the limitation of the base claim (i.e., Claim 15) and any intervening claims.

7. Applicant thanks the Examiner for the Examiner's clarifications.

8. Applicant respectfully acknowledges that the Examiner's March 15, 2004 Office Action was marked **Final**. Nevertheless, Applicant asks the Examiner to enter this Response so Applicant and the Examiner may advance the case to final resolution, for which Applicant would be grateful.

CONCLUSION

Applicant believes Applicant has overcome the Examiner's rejection of Claims 1-20 under 35 U.S.C. § 103(a). Moreover, Applicant believes Claims 1-20 are patentable. Thus, Applicant respectfully submits that all pending claims are in a condition for allowance, which Applicant respectfully requests. Applicant also seeks notification to that effect. Applicant also believes this Response should allow the Examiner to allow the above-referenced patent application to issue as a U.S. patent without further amendments to the specification or claims.

If questions arise, please telephone the undersigned attorney.